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(71) Applicant: GEOWORKS CORPORATION [US/US]; 960 Atlantic Avenue, Alameda, CA 94501 (US).

(72) Inventors: BOYLE, Charles; Geoworks Corporation, 960 Atlantic Avenue, Alameda, CA 94501 (US). TOKUNAGA, David; Geoworks Corporation, 960 Atlantic Avenue, Alameda, CA 94501 (US). FONTE, John; Geoworks Corporation, 960 Atlantic Avenue, Alameda, CA 94501 (US). DE BOOR, Adam; Geoworks Corporation, 960 Atlantic Avenue, Alameda, CA 94501 (US).

(74) Agent: SEREBOFF, Steven; Arter & Hadden LLP, 5 Park Plaza, Suite 1000, Irvine, CA 92614-8528 (US).

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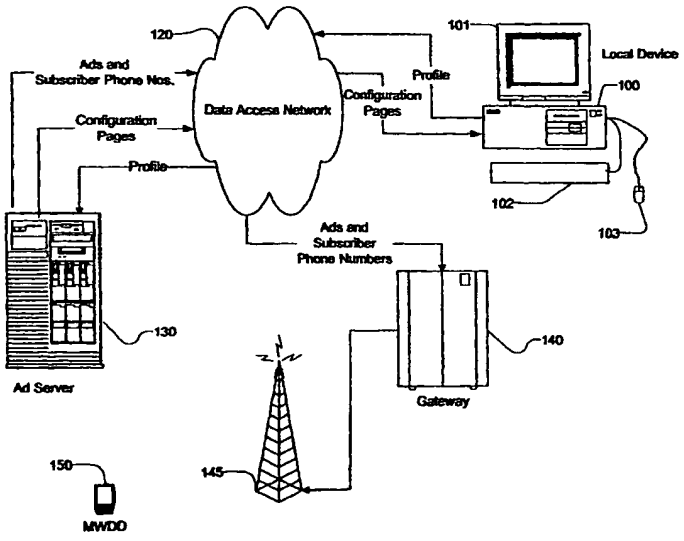
(54) Title: METHOD OF SUBSCRIBER SELF-SELECTION OF ADVERTISEMENTS RECEIVED ON THEIR MOBILE WIRELESS DISPLAY DEVICES



(57) Abstract: In accordance with the present invention, a subscriber can control advertisements received on the subscriber's mobile wireless display device. In accordance with the invention, the subscriber may select categories of content they wish to receive, advertisers from whom they wish to receive ads, the days and times for delivery of content, and the number of ads they want to receive in a unit time period. Accordingly, the subscriber is provided with the power to self-select desired advertising for his wireless display device.

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Method of Subscriber Self-Selection of Advertisements Received on Their Mobile Wireless Display Devices

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RELATED APPLICATION INFORMATION

This application is related to Application No. 09/057,394, entitled "Wireless Communication Device With Markup Language Based Man-Machine Interface," and filed on April 8, 1998 by Adam de Boor and Michael D. Eggers, assigned to the same assignee as the present application, which application is incorporated herein by reference.

This application is related to Application No. 09/075,405 entitled "Integrated Advertising for Wireless Communication Devices With Rich Content and Direct User Response Mechanism," and filed on May 8, 1998 by Adam de Boor and Michael D. Eggers, assigned to the same assignee as the present application, which application is incorporated herein by reference.

This application is a continuation-in-part of Application No. 60/138,994 entitled "Subscriber Control of Advertisements Received on a Mobile Wireless Display Device," and filed on June 14, 1999 by Charles Boyle, David Tokunaga, John Fonte, and Adam de Boor, assigned to the same assignee as the present application, which application is incorporated herein by reference.

BACKGROUND OF THE INVENTION

1. Field Of The Invention

The present invention relates to user control of advertisements received on a mobile wireless display device.

2. Description Of Related Art

Wireless communication devices are becoming increasingly prevalent for personal communication needs. These devices include, for example, cellular telephones, alphanumeric pagers, "palmtop" computers and personal information managers (PIMs), and other small, primarily handheld communication and computing devices. Wireless communication devices have matured considerably in their features, and now often support not only basic point-to-point communication functions like telephone calling, but more advanced communications functions, such as electronic mail, facsimile receipt and transmission, Internet access, Web browsing, and the like.

A subset of wireless communications devices can be considered "mobile wireless display devices." These devices are able to receive transmissions from a wireless service provider, and further include an alphanumeric display which can display at least 12 characters. Mobile wireless display devices include smart phones, alphanumeric pagers, and mobile phones having multiline displays, including many cellular, PCS and satellite phones. It has also become common for PDAs and other mobile information devices to include interfaces for wireless communication reception and sometimes even transmission. Not only have small devices such as PDAs been given more features, larger devices have shrunk. Thus, portable PCs, such as notebook computers, having wireless receivers and transceivers are available. These, too, are mobile wireless display devices.

One of the current problems facing wireless service operators providing cellular services on wireless communication devices is the delivery of electronic advertising. Service operators desire to provide advertising directly on the wireless communication device, as a way of garnering additional revenue or

reaching additional subscribers by allowing the service operator to charge the subscriber less, making up the difference with advertising revenue.

Mobile wireless communications devices, however, are usually considered to be very personal devices; subscribers are very sensitive about what is delivered to their devices. Current advertising systems are fairly heavy-handed, and do not include an element of self-selection in how they choose which advertisement to provide in an advertising slot. Rather, they rely on coarse and inaccurate mechanisms. For example, service providers run the risk of delivering an advertisement for a competitor – potentially leading a subscriber to switch to a different service provider. Furthermore, subscribers who are bombarded with unwanted advertisements will either learn to disregard all ads, or will reduce their use of the mobile wireless display device.

In all media, advertising systems generally fall into three types: billboard, channel, and personalized. In the billboard system, whoever bought the slot gets their advertisement there. In the channel system, an advertisement appropriate to the demographic associated with the content around the advertising slot (e.g. TV show, magazine, web page) is chosen. In the personalized system, the system infers interest on the basis of ongoing, personal monitoring of the viewer's behavior (topic searches, subscriptions, email, travel/location) or subscriber-entered demographic data, and delivers an advertisement based on that inference. Although all three types provide some measure of targeting, none is adequate to solve the needs of wireless service providers.

Advertisers find it desirable to target advertisements to relevant potential customers. For example, an advertiser of motor oil would prefer to target car owners with its advertising. A Boston restaurant would prefer to target residents of Boston and business travelers rather than children living in San Francisco. Moreover, advertisers prefer to pay for advertising based upon the number of relevant consumers who are actually exposed to the advertisement. For typical advertising media, it is often difficult for an advertiser to precisely determine whether its advertisements were actually viewed by a subscriber and for how long,

and whether the advertisement induced a response. Accordingly, there exists a need for a targeted advertisement system that also can provide information as to the characteristics of those who were exposed to each advertisement, for how long the subscriber was exposed, and at what times.

SUMMARY OF THE INVENTION

In accordance with the present invention, a subscriber can control the transmission of ads transmitted to the subscriber's mobile wireless display device. In accordance with the invention, the subscriber provides desired demographic and geographic information which is used for taregting ads to the subscriber. The geographic information may include both a fixed address as well as their current location, and whether they are in motion. Furthermore, the subscriber may select categories of ads they wish to receive, advertisers from whom they wish to receive ads, the days and times for delivery of ads, and the number of ads they want to receive in a unit time period. The subscriber may permit psychographic information to be obtained. Accordingly, the subscriber is provided with the power to self-select desired ads for his mobile wireless display device.

Still further objects and advantages attaching to the system and to its use and operation will be apparent to those skilled in the art from the following particular description.

DESCRIPTION OF THE DRAWINGS

Further objects of this invention, together with additional features contributing thereto and advantages accruing therefrom, will be apparent from the following description of a preferred embodiment of the present invention which is shown in the accompanying drawings with like reference numerals indicating corresponding parts throughout and which is to be read in conjunction with the following drawings, wherein:

Figure 1 is a first block diagram of a network data distribution system in accordance with the invention.

Figure 2 is a frontal plan view of a mobile wireless display device in accordance with the present invention.

Figure 3 is a frontal plan view of a mobile wireless display device in accordance with the invention.

Figure 4 is a flow diagram of a method of controlling advertisements received on a mobile wireless display device in accordance with the invention.

Figure 5 is a flow diagram of a method subscriber registration in accordance with the invention.

Figure 6 is a flow chart of a method of preference setting in accordance with the invention.

Figure 7 is a flow diagram of a method of determining a next ad time in accordance with the invention.

Figure 8 is a flow chart of a method of selecting advertisements in accordance with the invention.

Figures 9A and 9B are views of database objects of a subscriber database in accordance with the invention.

These and additional embodiments of the invention may now be better understood by turning to the following detailed description wherein an illustrated embodiment is described.

DETAILED DESCRIPTION OF THE INVENTION

Throughout this description, the preferred embodiment and examples shown should be considered as exemplars, rather than limitations on the apparatus and methods of the present invention.

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The System of the Invention

The system of the invention enables ads to be sent to mobile wireless display devices based upon: a subscriber's personal profile information; the scheduling requirements of the ads; and the demographic, target behavior profile, or subscriber location requirements of the ads.

As used herein, an "ad" is an advertisement or promotion. An "ad message" means a discrete visual communication sent in a unidirectional communications channel. An ad includes a visual component, such as text or graphics. An ad may include audio, video and / or other physical feedback. Ads are not sent in real time, so although the recipient of an ad may respond directly to it, neither the ad nor the response are sensitive to delays. Of course, at some point, the delays may impact the effect of the ad or the response, notably because the ad or the response may get "stale." However, the underlying transport is not sensitive to delays.

Whereas "ad message" relates to the transmission process, "ad content" relates to the information conveyed by the ad message. Thus, each ad message includes ad content. The ad message is sent by the transmitter and received by the receiver. The receiver communicates the ad content to the subscriber. The ad content is supplied by an advertiser, and the ad message is created by packaging the ad content and transmitting it.

Referring now to Figure 1, there is shown a block diagram of an ad message distribution system in accordance with the invention. Figure 1 includes a local device 100, a data access network 120, an ad server 130, a gateway 140, a radio tower 145 and a mobile wireless display device 150.

The local device 100 preferably comprises a client computer which is configured to access the ad server 130 via the data access network 120. The client computer may be, for example, a PC running a Microsoft Windows operating system. The local device 100 preferably includes an output device, such as display 101, and an input device, such as keyboard 102 and / or pointing device 103 (e.g., mouse, track ball, light pen, or data glove). The local device 100 may also be, for example, an Internet appliance, network computer (NC), or an appropriately Internet-enabled device such as a portable digital assistant (PDA), mobile phone, refrigerator, etc. The particular type of device of the local device 100 is not considered to be important so long as the local device 100 can provide some measure of individual subscriber interactivity with an online service. Nor is it required that the local device 100 be different from the mobile wireless display device 150; they may be one and the same. Although not shown, other devices such as web servers may also be connected to the data access network 120 and be accessible from the local device 100. A browser application, such as Microsoft Internet Explorer or Netscape Navigator is preferably installed on the local device 100.

The data access network 120 provides lower layer network support for the local device 100 to interact with the ad server 130. The data access network 120 preferably comprises a common or private bi-directional telecommunications network (e.g., a public switched telephone network (PSTN), a cable-based telecommunication network, a LAN, a WAN, a wireless network), coupled with or overlaid by a TCP/IP network (e.g., the Internet or an intranet). TCP/IP, however, is not a requirement of the present invention.

The gateway 140 is preferably a server and associated devices which interface the data access network 120 to the radio transmitter 145, as known in the art. The gateway 140 is preferably part of a network operations center. Figure 1 shows the ad server 130 and the gateway 140 communicating through the data access network 120. Alternatively, the ad server 130 and the gateway 140 may be connected through a network which is separate from the data access network 120, or could be connected directly, such as within a service operator's facilities. In

these alternatives, the ad server 130 might also be a part of the network operations center. The radio tower 145 may be terrestrial or airborne.

The gateway 140 preferably also has tracking capabilities. That is, in the manner known in the art, the location of a subscriber's mobile wireless display device is know to the gateway 140, or the gateway 140 can obtain this information from the service provider's network information center. Depending on the type of mobile wireless display device and the service provider, the precision of the location information varies. Furthermore, some service providers may be unable to determine the location information. Since mobile wireless display devices are mobile, the gateway 140 preferably can locate the mobile wireless display devices as they move. To the extent that the gateway 140 can obtain subscriber location information, the gateway 140 provides this information to the ad server 130.

The ad server 130 preferably is a computer system, such as a server computer. Alternatively, the ad server 130 may be considered to represent a number of physical devices which as a group provide the indicated network services. The ad server 130 acts as a recipient of certain information transmitted by the local device 100, as described further below. The ad server 130 preferably also transmits certain data to the mobile wireless display device 150 as described further below.

Although only one local device and one mobile wireless display device are shown in Figure 1, the system of the invention contemplates any number of these devices.

Referring now to Figure 2, there is shown an enlarged view of the mobile wireless display device 150. The mobile wireless display device shown is a cellular phone, although it will be appreciated that other mobile wireless display devices, such as PCS phones, pagers, PDAs enabled with wireless communications capabilities, and satellite-based phones are also with the scope of the invention. Indeed, the mobile wireless display device 150 may actually consist of two devices linked together: one interfacing to the wireless communications network, and the other serving to display the content.

The mobile wireless display device 150 is shown having a display 200 which is logically divided into a status bar 210, a title bar 220 and a content area 250. The status bar 210 is preferably always present and displays items such as signal strength 211, battery strength 212, and a message-waiting indicator 213. A mode indicator 214 may also be included to indicate the mode for text entry, whether alpha, numeric, or a combined alphanumeric mode.

The title bar 220 preferably displays an identification of the content in the content area 250. For example, the title bar 220 might display "Promo" for a promotion or advertisement in the content area 250, "Phone Book" if the content area 250 is being used to show phone book entries, or "Dialing" if the phone is dialing a number.

The content area 250 is used to display the particular content of a user interface page, for example, text of a message, phone book entries, advertisements, phone numbers being dialed and the like. In the content area 250, a focus and selection icon may optionally be used to indicate the particular item or line of content that has the focus, i.e. is the current user interface gadget or input field.

Figure 3 shows the mobile wireless display device 150 with a graphical advertisement. The advertisement of Figure 3 covers the title area 220, and includes soft key labels 255 along the bottom of the content area 250 (though other locations may be used).

The ad content is preferably formatted to be compatible with a wide range of mobile wireless display devices. In general, a text-only message of less than 100 characters will be compatible with a majority of current mobile wireless display devices, because these devices have relatively small displays. In one embodiment, the GSM Short Message Service is utilized.

The ad content and portions thereof (e.g., objects) may be delivered to the mobile wireless display device in many ways. For example, ad content may be delivered to a mobile wireless display device at a first time, and ad messages sent later to the mobile wireless display device would cause the ad content to be

conveyed to the subscriber. Thus, batches of ad content may be delivered to a mobile wireless display device at a time which is lower in cost or when there is less wireless traffic. Furthermore, some aspects of the ad content may be delivered using fixed communications means (e.g., wireline), and also activated by ad messages. In most embodiments, the mobile wireless display device 150 will have at least some displayable objects, and signals from the ad server 130 cause these objects to be displayed in the content area 250 (Figure 2). For example, characters of the alphabet may be pre-stored in the mobile wireless display device 150 during its manufacture, and signals sent to the mobile wireless display device would identify the characters forming the message to be displayed. Displays may also be generated through a combination of pre-stored and transmitted objects.

As mentioned, the messages are preferably ads. Each ad preferably contains no more than one discount, a way to redeem and an expiration date. The expiration date is used to create a sense of urgency for the subscriber to act on the ad. Limiting an ad to a single discount is desirable to avoid clutter. Since most mobile wireless communication devices have a small display, the limited space should be used for maximum impact. Furthermore, because many mobile wireless display devices are used by subscribers during other activities such as while driving, the intrusiveness and scope of distraction of the message should be moderated.

Several ways to redeem an ad are possible. Preferably, redemption also provides the advertisers and service providers a way to track transactions and the associated revenue. For mobile phones, a phone number or promotion code are the preferred bases for redemption. With a phone number, the subscriber can call a phone number especially designated by the advertiser or the service provider. Telephone-based redemption also permits the subscriber to find local outlets of the advertisers' businesses, and to receive additional information from the advertisers. With a promotion code, the subscriber contacts the advertiser either in person, by phone or electronically to receive the benefit of the ad. Some smart phones support soft keys, and a one-touch smart key may be included in the content for redemption. Similar capabilities may be provided in two-way pagers.

The Method of the Invention

Referring now to Figure 4, there is shown a block diagram of the ad server 130 and how the ad server 130 allows subscribers to control which advertisements they will receive on their mobile wireless display devices in accordance with the invention. The method of the invention has four basic processes: a subscriber registration process 450, a preference setting process 460, a scheduling process 470 and an ad selection process 480. These processes 450, 460, 470, 480 operate in conjunction with a database 410 maintained by the ad server 130. In the subscriber registration process 450, a subscriber provides personal profile information to the ad server 130. In the preference setting process 460, the subscriber provides ad preference criteria to the ad server 130. In the scheduling process 470, the ad server 130 determines a next time for delivery of ad messages to the subscriber. In the ad selection process 480, the ad server 130 correlates the subscriber's profile information and preference criteria against available ads and selects one ad for delivery to the subscriber. The method preferably further includes an advertisement transmission process 490. In this process 490, the ad server 130 causes the gateway 140 to transmit the ad selected in the ad selection process 480 to the subscriber at the time determined in the next ad timer process 470. The ad messages may be transmitted to the subscriber's mobile wireless display device individually or in batch.

The database 410 is preferably relational, comprising tables, the tables comprising rows, in the manner known in the art. Figures 9A and 9B present a view of preferred objects in the database 410. Bold fields constitute the primary key for the table, which uniquely identifies each row, and therefore must contain data for every row. Italic fields are "not null" and must contain data for every data row. Fields with an asterisk (*) are generated within an automatic sequence to be unique for every row. This view is just one way of embodying the database 410, and others are within the scope of the invention. The fields shown in Figures 9A and 9B have descriptive names which in general will be appreciated by those of ordinary skill in the art. For some fields, additional explanation is provided below.

Three user tables 905, 910, 915 include information about subscribers. The ad server 130 preferably creates a record in each of these tables for each subscriber. A User_validation table 905 is used for login information. The User_validation table includes a Username field 905a, a Login_type field 905b, a Password field 905c and a Deleted field 905d.

A User_variable table 910 holds subscriber (or service) related variables that are not defined elsewhere. The User_variable table 910 includes a Username field 910a, a Name field 910b and Value field 910c. The Name field 910b stores a variable name, and the Value field 910c stores a value for the variable name in the Name field 910b for the user identified in the Username field 910a.

A User_info table 915 holds information collected about the subscriber, including the subscriber's personal profile. The User_info table includes a Username field 915a, a Family_name 915b field, a Given_name field 915c, a Gender field 915d, a Birthdate field 915e, an Operator field 915f, a TargetNo field 915g, a TargetNo_pin field 915h, a Timezone field 915i, a VoiceNo field 915j, a FaxNo field 915k, a MobileNo field 915l, an Email field 915m, an Address field 915n, a City field 915o, a Postalcode field 915p, a Country field 915q, a Region 915r field, Demographic field 915s, a Company field 915t, a Title field 915u, an Occupation field 915v, a Marital_status field 915w, a Household field 915x, a Hobbies field 915y and an Updated field 915z.

A Request_log table 920 and a Session_log table 925 store basic logging and reporting information. The Request_log table 920 includes a Username field 910a, a Time field 910b, a Success field 910c, a Channel_name field 910d and a Name field 910e. The Session_log table 925 includes a Username field 925a, a Starttime field 925b and an Endtime field 925c. Advanced reporting can be achieved through joins with other tables or through creation of additional table structures.

A Deliver table 930 holds the delivery preferences for each subscriber, and includes a Reg_id field 930a, a Username field 930b, a Send_days field 930c, a Send_times field 930d, an Ads_received field 930e, an Enabled field 930f, and a

Max_promos field 930. The Send_days field 930c and the Send_time field 930d store the days and times, respectively, at which to deliver advertisements. The Ads_received field 930e stores the maximum number of advertisements to deliver in a given time period.

A Deliver_category table 935 is linked to the Deliver table 930 to indicate the advertisement categories that are acceptable to the subscriber. The Deliver_category table 935 includes a Reg_id field 935a and a Category field 935b.

A Promoter table 950 includes information about each organization which desires to have content-area advertisements and promotions transmitted to subscribers. The Promoter table 950 includes a Name field 950a, a Password_id field 950b, an Address 950c field, a PhoneNo field 950d, an Email field 950e, an Updated field 950f, a City field 950g, a State field 950h, a Postalcode field 950i, a Country field 950j, a Faxno field 950k and a Comments field 950l.

A Product table 955 includes information about products the promoter wishes to promote. The Product table 955 includes a Name field 955a, a Promoter_name field 955b, a Logo_filename field 955c, a Logo_binary field 955d, a Logo_binary_type field 955e, a Toplist field 955f and an Updated field 955g. Thus, the Product table 955 includes logos and other information that can be displayed to the user in association with the promotion.

A Promotion table 960 includes information about the advertisements and promotions. The Promotion table includes an Id field 960a, a Product_name field 960b, a Promoter_name field 960c, a Leadline field 960d, a Text field 960e, a Text_type field 960f, a Code field 960g, a Number_sent field 960h, a Startdate field 960i, an Expiredate field 960j, a Max_usage field 960k, a Region field 960l, a Graphics_dir field 960m, a Valid_days field 960n, an Updated field 960o and a Demographics field 960p.

A Promo_category table 965 associates each promotion with one or more categories. The Promo_category table 965 includes an Id field 965a and a Category field 965b.

Each promoter may have one or more promotions for each of one or more products. Each promotion in turn may be associated with one or more categories. The categories form a hierarchy, which is defined in a Category_parent_child table 970 . The record of which promotions have been sent to which subscribers is kept in a Promo_log 975 table. The Promo_log table 975 includes an Id field 975a, a Username field 975b, a Time_sent field 975c and a Send_count field 975d.

Referring now to Figure 5, there is shown a flow diagram of the subscriber registration process 450. Preferably, registration is performed by the subscriber online, and more preferably using the Web. Alternatively, registration 450 occurs in conjunction with the subscriber obtaining service for his mobile wireless display device 150 from the service provider. In the first step, the subscriber connects his local device 100 to the Web (step 510). Next the subscriber activates his browser (step 515). Then, the subscriber points his browser to the ad server 130 (step 520). The ad server 130 preferably includes a facility for the subscriber to identify himself, preferably through a login process which can be automated (step 525). The ad server 130 checks the user's identification against the data in the User_validation table 905.

In the login process (step 525), the ad server 130 necessarily treats new subscribers differently than existing subscribers (step 530). Preferably, this is achieved by offering separate entry points for new users and registered users. In the subscriber registration process 450 (Figure 4), new subscribers are asked to enter their profile (step 535). The ad server 130 preferably provides existing subscribers with the ability to revise their profiles (step 540), such as through appropriate web pages. If possible, the ad server 130 automatically obtains or generates profile information.

As mentioned abolve, profile information is stored in the User_info table 915. Thus, the profile preferably includes personal identification and demographic information. The personal identification information preferably includes the subscriber's name, and the phone number of the subscriber's mobile wireless display device. In some embodiments, it may also be necessary for the

subscriber to identify his phone or pager service provider, and pager PIN. The demographic information preferably includes age, gender, income, and home zip code.

Referring now to Figure 6, there is shown a flow chart of the preference setting step (step 460). Assuming that the subscriber has already logged on to the ad server 130 as described above, the ad server 130 displays one or more pages in which the subscriber can create and edit his preference criteria (step 610). There are preferably four parts of the subscriber's profile which the subscriber creates and can edit. In addition, there are preferably fields in the subscriber's profile which are maintained by the ad server 130 and which the subscriber cannot edit.

The subscriber preferably can specify individual advertisers (step 615) and whole categories of advertisers (step 620) from which to receive advertisements. Advertiser names and advertiser categories may be expressed as identifiers, strings, some arbitrary token, or other means. The subscriber preferably can also specify how frequently the subscriber desires to receive advertisements (step 625). The frequency is preferably expressed in terms of the number of advertisements the subscriber is willing to receive in a unit period, preferablt expressed as number of ads per day. The subscriber preferably can also select days of the week and times of day for receipt of ads (step 630). This step 630 permits the subscriber to select an ad delivery schedule which more closely tracks when he is using his mobile wireless display device 150. The ad server 130 stores these preferences in the database 410 in the Deliver table 930 and the Deliver_category table 935 (step 635).

The subscriber preferably can also temporarily disable the transmission of advertisements to the subscriber's mobile wireless display device, without losing the preferences themselves. This is reflected in the Enabled field 930e of the Deliver table 930.

Once the preference criteria are created or updated, a scheduler in the ad server 130 is reset to ensure that the current preference criteria will be used for

selecting advertisements for the subscriber (step 640), and the preference setting process is complete (step 645).

In addition to creating and updating the subscriber's profile and preferences, the ad server 130 preferably includes web pages through which the subscriber can review advertisements previously sent to the subscriber's mobile wireless display device. More preferably, the subscriber can view the prior week's advertisements, and print coupons and copies of the advertisements. The ad server 130 can obtain this information from database 410, in the Promo_log table 975.

Referring now to Figure 7, there is shown a flow diagram of the scheduling process 470 (Figure 4). For a new subscriber, the ad server 130 preferably supervises the scheduler for that subscriber (step 710). If the subscriber has updated his profile, then the scheduler is reset (step 730). A subscriber's scheduler is used to determine the next time something is supposed to happen with respect to that subscriber. In the normal case, the scheduler will allow an advertisement to be sent to the subscriber at the next interval (step 725). However, if the subscriber has received his limit of advertisements (as defined in his profile) (step 720), the scheduler will set the next time for an advertisement to be sent to be the end of the interval for which the maximum has been specified (usually a day) (step 740), at which time the Ads_received field is reset and the scheduler is reset in conformance with the profile.

When setting the scheduler to deliver the next advertisement to the subscriber, the ad server 130 examines the Deliver record 930 to find the nearest interval to the current time that does not include the current time. The ad server 130 then sets the scheduler to the start of that interval (step 725).

Referring now to Figure 8, there is shown a flow chart of selecting advertisements. When it is time to select an advertisement to deliver to the subscriber (step 805), the ad server 130 uses the Promotion table 960, Promo_category table 965, Deliver table 930, Deliver_category table 935, User_info table 915, User_variable table 910, and User_validation table 905 to

identify the advertisements that are compatible with the subscriber's preferences. Specifically, the rows in the Promotion table 960, for which there are rows in the Promo_category table 965 with the same ID whose Category field matches the Category field of one of the rows in the Deliver_category table 935 with the same Reg_id field as the row in the Deliver table 930 for the subscriber, and for which the contents of the Demographics field match the various fields in the subscriber's row in the User_info table 915, are the promotions that are considered for transmission (step 810).

If more than one advertisement fits these criteria (step 815), the ad server 130 selects an advertisement arbitrarily (step 820), but may also consider such criteria as limiting the number of times a particular advertisement may be seen by the subscriber, advertisement priority, or other criteria unspecified here. Furthermore, the pool of matches may be further limited based upon best-fit criteria, including but not limited to behavioral dependencies, or current subscriber location.

The ad server 130 obtains preferably dynamically obtains information about the subscriber which is useful for targeting ads. This information includes location information, whether the subscriber is moving or stationary, and region called and length of call. The gateway 140 preferably can provide the ad server 130 with subscriber location information and call data records, which can be used to determine what region a subscriber is calling (e.g., local vs. long distance vs. international) and the length of the calls. The ad server 130 also preferably obtains psychographic information about the subscriber, such as which promotions and advertisements the subscriber has redeemed and when they were redeemed, and characteristics of the subscriber's use of his mobile wireless display device. This other information may be stored in additional fields of the User_info table 915, or in the User_variable table 910. The subscriber is preferably provided control over the quality and extent of the information which the ad sever 130 gathers about the subscriber. This then provides the subscriber with additional control over the ads targeted to the subscriber.

Preferably, the scheduling process 470 and the ad selection process 480 allow dipatch of ads without delay. This is useful for ads targeted based upon the current location of the mobile wireless display device, and also for ads which are time-sensitive.

The advertisement selection process then passes the advertisement selection to the advertisement transmission process 490, which dispatches the advertisement to the subscriber.

Once the advertisement has been dispatched, the ad server 130 increments the Ads_received field of the subscriber's record and the scheduling process 715 (Figure 7) determines when to send the next advertisement.

Although exemplary embodiments of the present invention have been shown and described, it will be apparent to those having ordinary skill in the art that a number of changes, modifications, or alterations to the invention as described herein may be made, none of which departs from the spirit of the present invention. All such changes, modifications and alterations should therefore be seen as within the scope of the present invention.

For example, the system of the invention could be used to target advertisements through monitoring of subscribers' mobile wireless display devices. Advertisements can be targeted based upon the subscriber's geographic location. The geographic location is available from the gateway 140, and whether a mobile wireless display device is stationary or moving can be determined within a margin of error. Advertisements can be targeted based upon region called and length of call: the gateway 140 can provide the ad server 130 with call data records, which can be used to determine what region a subscriber is calling (e.g., local vs. long distance vs. international) and the length of the calls. Other targeting and selection controls can be used, including time of day, random choice among variations of a promotion, or the use of additional demographic information, either entered by the subscriber or inferred from the subscriber's behavior.

In addition, the system of the invention could be used to include advertisements along with other content, following the same selection criteria, but without the time-based components of the system; only the subscriber preferences would be employed.

CLAIMS

It is claimed:

1. A method of controlling advertisements received on a mobile wireless display device, the method comprising the steps of:

(a) a subscriber registration step comprising a subscriber providing personal profile information to an ad server;

(b) a preference setting step comprising the subscriber providing advertisement preference criteria to the ad server;

(c) an advertisement selection step comprising the ad server correlating the subscriber's profile information and preference criteria against available advertisements and selecting one advertisement for display on the subscriber's mobile wireless display device;

(d) an advertisement transmission step comprising the ad server causing a wireless transmitter to transmit an ad message to the subscriber's mobile wireless display device, the ad message providing sufficient information to the mobile wireless display device for the mobile wireless display device to display the one advertisement.

2. The method of controlling advertisements received on a mobile wireless display device as set forth in claim 1, wherein the subscriber registration step comprises the subscriber using a local device to connect to the ad server, and the subscriber entering the personal profile information into a form on the local device, and the local device sending the subscriber's personal profile information to the ad server.

3. The method of controlling advertisements received on a mobile wireless display device as set forth in claim 1, wherein the subscriber registration step comprises the subscriber providing the personal profile information orally, and the orally-provided personal profile information being provided to the ad server.

4. The method of controlling advertisements received on a mobile wireless display device as set forth in claim 1, wherein the subscriber provides the personal profile information in conjunction with subscription to wireless services for the subscriber's mobile wireless display device.

5. The method of controlling advertisements received on a mobile wireless display device as set forth in claim 1, the subscriber registration step further comprising storing the personal profile information into a database.

6. The method of controlling advertisements received on a mobile wireless display device as set forth in claim 1, wherein the personal profile information includes the subscriber's family name, given name, gender and birthdate, and the ad server stores the personal profile information in respective fields in a database.

7. The method of controlling advertisements received on a mobile wireless display device as set forth in claim 1, wherein the personal profile information includes the subscriber's company, title and occupation field, and the ad server stores the personal profile information in respective fields in a database.

8. The method of controlling advertisements received on a mobile wireless display device as set forth in claim 1, wherein the personal profile information includes the subscriber's hobbies, and the ad server stores the profile information in respective fields in a database.

9. The method of controlling advertisements received on a mobile wireless display device as set forth in claim 1, wherein the personal profile information includes geographic information about the subscriber, and the ad server stores the geographic information in respective fields in a database.

10. The method of controlling advertisements received on a mobile wireless display device as set forth in claim 1, wherein the personal profile information includes demographic information about the subscriber, and the ad server stores the demographic information in respective fields in a database.

11. The method of controlling advertisements received on a mobile wireless display device as set forth in claim 1, wherein the subscriber provides the advertisement preference criteria in conjunction with subscription to wireless services for the subscriber's mobile wireless display device.

12. The method of controlling advertisements received on a mobile wireless display device as set forth in claim 1, wherein the preference setting step comprises the subscriber using a local device to connect to the ad server, and the

subscriber entering the advertisement preference criteria into a form on the local device, and the local device sending the advertisement preference criteria to the ad server.

13. The method of controlling advertisements received on a mobile wireless display device as set forth in claim 1, wherein the preference setting step comprises the subscriber providing the advertisement preference criteria orally, and the orally-provided advertisement preference criteria being provided to the ad server.

14. The method of controlling advertisements received on a mobile wireless display device as set forth in claim 1, wherein the mobile wireless display device has a current location; the advertisement selection step further comprising the ad server correlating the current location against the available advertisements for selection of the one advertisement.

15. The method of controlling advertisements received on a mobile wireless display device as set forth in claim 1, the subscriber registration step further comprising storing the advertisement preference criteria into a database.

16. The method of controlling advertisements received on a mobile wireless display device as set forth in claim 14, wherein the advertisement preference criteria includes days and times when the subscriber is willing to receive ads on

the subscriber's mobile wireless display device, and the ad server stores the advertisement preference criteria in respective fields in a database.

17. The method of controlling advertisements received on a mobile wireless display device as set forth in claim 14, wherein the advertisement preference criteria includes categories of advertisements which the subscriber is willing to receive on the subscriber's mobile wireless display device, and the ad server stores the advertisement preference criteria in respective fields in a database.

18. The method of controlling advertisements received on a mobile wireless display device as set forth in claim 14, wherein the advertisement preference criteria includes a maximum number of ads which the subscriber is willing to receive on the subscriber's mobile wireless display device, and the ad server stores the advertisement preference criteria in respective fields in a database.

19. The method of controlling advertisements received on a mobile wireless display device as set forth in claim 14, wherein the advertisement preference criteria includes specific advertisers from whom the subscriber would like to receive ads, and the ad server stores the advertisement preference criteria in respective fields in a database.

20. The method of controlling advertisements received on a mobile wireless display device as set forth in claim 1, further comprising an advertisement

scheduling step, comprising the ad server determining when to next send an advertisement to the subscriber's mobile wireless display device.

21. The method of controlling advertisements received on a mobile wireless display device as set forth in claim 20 wherein the advertisement scheduling step comprises the ad server determining that an advertisement should be transmitted to the subscriber without delay.

22. The method of controlling advertisements received on a mobile wireless display device as set forth in claim 20 wherein the advertisement scheduling step occurs after the ad selection step, and the advertisement scheduling step comprises the ad server determining that the one advertisement should be transmitted to the subscriber without delay.

23. The method of controlling advertisements received on a mobile wireless display device as set forth in claim 1, wherein the preference setting step comprises the subscriber entering the advertisement preference criteria into a form on a local device, and the local device sending the subscriber's advertisement preference criteria to the ad server.

24. The method of controlling advertisements received on a mobile wireless display device as set forth in claim 1, the advertisement selection step further comprising the ad server determining if the mobile wireless display device is

stationary or moving, and correlating the current location against the available advertisements for selection of the one advertisement.

25. A method of controlling advertisements received on a subscriber's mobile wireless display device, the method comprising the steps of:

(a) a subscriber registration step comprising an ad server receiving personal profile information about a subscriber of a wireless service, the personal profile information including an identification of the subscriber's mobile wireless display device;

(b) a preference setting step comprising the subscriber providing advertisement preference criteria to the ad server, the advertisement preference criteria establishing limits on the advertisements which may be sent by the ad server to the subscriber's mobile wireless display device;

(c) an advertisement selection step comprising the ad server correlating the subscriber's profile information and advertisement preference criteria against available advertisements and selecting at least one advertisement for delivery to the subscriber's mobile wireless display device;

(d) an advertisement transmission step comprising the ad server sending signals to the subscriber's mobile wireless display device to display the selected at least one advertisement.

26. The method of controlling advertisements received on a subscriber's mobile wireless display device as set forth in claim 25, wherein the personal profile information includes demographic and geographic information.

27. The method of controlling advertisements received on a subscriber's mobile wireless display device as set forth in claim 25, wherein the advertisement preference criteria includes a maximum number of advertisements which the subscriber is willing to receive on the subscribers mobile wireless display device; the method further comprising limiting the number of advertisements transmitted to the subscriber's mobile wireless display device to the maximum.

28. The method of controlling advertisements received on a subscriber's mobile wireless display device as set forth in claim 25, wherein the advertisement preference criteria includes days of the week and times of day when the subscriber is willing to receive advertisements on the subscriber's mobile wireless display device; the method further comprising a scheduling step comprising the ad server determining a next time for delivery of advertisements to the subscriber's mobile wireless display device based upon the advertisement preference criteria.

29. The method of controlling advertisements received on a subscriber's mobile wireless display device as set forth in claim 25, further comprising a redemption step comprising the subscriber receiving at least one advertisement from the ad server, and the subscriber responding to one of the at least one advertisements and receiving the benefit advertised.

30. The method of controlling advertisements received on a subscriber's mobile wireless display device as set forth in claim 25, further comprising an

advertisement review step, wherein the subscriber uses a local device to access the ad server and review advertisements on the local device which were previously transmitted to the subscriber's mobile wireless display device.

31. The method of controlling advertisements received on a subscriber's mobile wireless display device as set forth in claim 25, wherein the advertisements comprise text messages.

32. The method of controlling advertisements received on a subscriber's mobile wireless display device as set forth in claim 25, wherein the advertisements comprise discrete messages comprising plural objects.

33. The method of controlling advertisements received on a subscriber's mobile wireless display device as set forth in claim 25, wherein the subscriber's mobile wireless display device has stored therein plural objects; the advertisement transmission step comprising sending signals to the subscriber's mobile wireless display device to activate the plural objects to thereby form the display of the selected at least one advertisement.

34. The method of controlling advertisements received on a subscriber's mobile wireless display device as set forth in claim 25, the advertisement transmission step further comprising the ad server sending the selected at least one advertisement to a wireless service gateway, the wireless service gateway causing the at least one advertisement to be transmitted to the subscriber's mobile wireless display device through a radio transmitter.

35. The method of controlling advertisements received on a subscriber's mobile wireless display device as set forth in claim 25, wherein the subscriber registration step comprises the subscriber using a local device to connect to the ad server, and the subscriber entering the personal profile information into a form on the local device, and the local device sending the subscriber's personal profile information to the ad server.

36. The method of controlling advertisements received on a subscriber's mobile wireless display device as set forth in claim 25, wherein the mobile wireless display device has a current location; the advertisement selection step further comprising the ad server correlating the current location against the available advertisements for selection of the one advertisement.

37. The method of controlling advertisements received on a subscriber's mobile wireless display device as set forth in claim 25, the advertisement selection step further comprising the ad server determining if the mobile wireless display device is stationary or moving, and correlating the current location against the available advertisements for selection of the one advertisement.

38. The method of controlling advertisements received on a subscriber's mobile wireless display device as set forth in claim 25 further comprising an advertisement scheduling step, comprising the ad server determining when to next send an advertisement to the subscriber's mobile wireless display device.

39. The method of controlling advertisements received on a subscriber's mobile wireless display device as set forth in claim 38 wherein the advertisement scheduling step occurs after the ad selection step, and the advertisement scheduling step comprises the ad server determining that the one advertisement should be transmitted to the subscriber without delay.

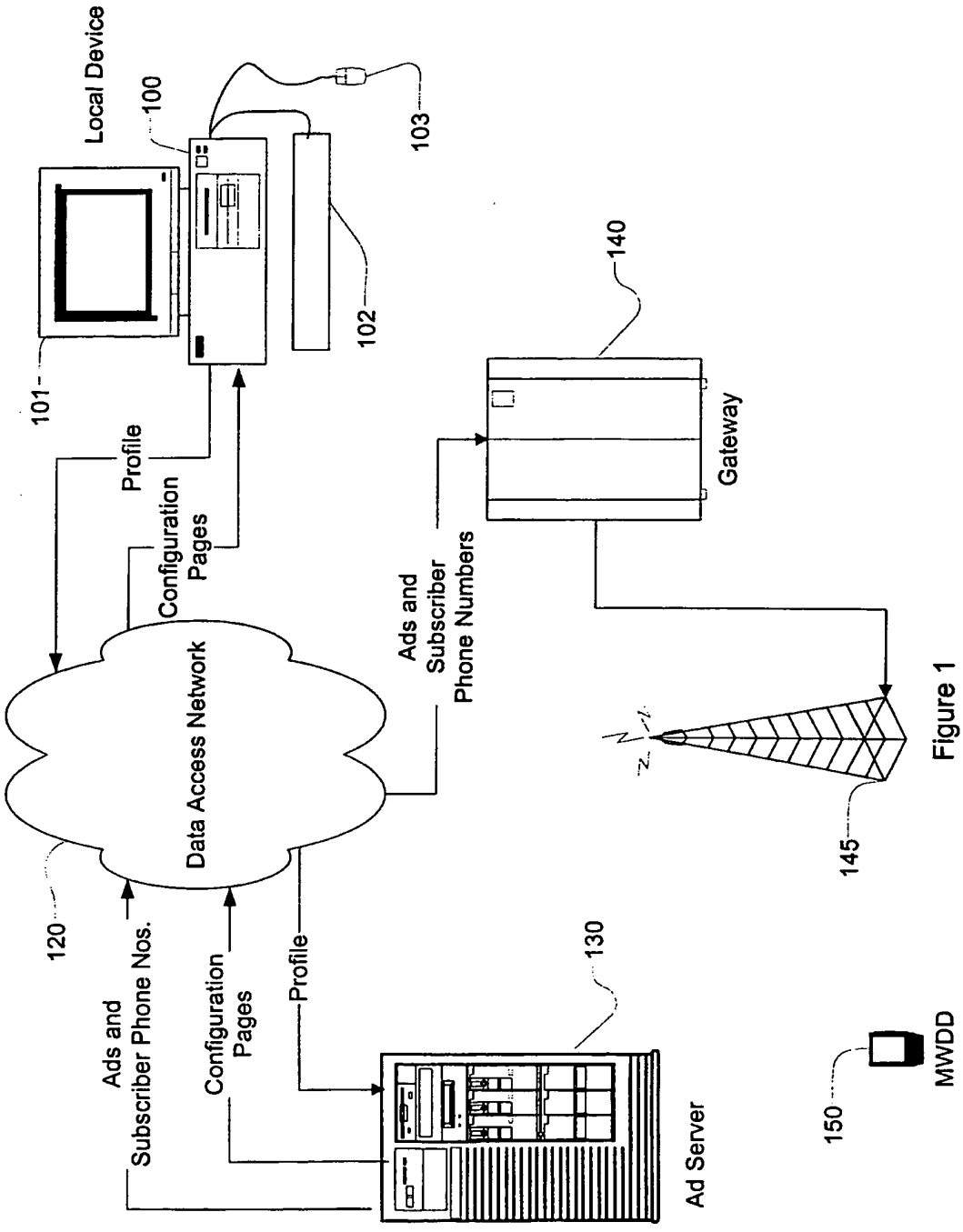
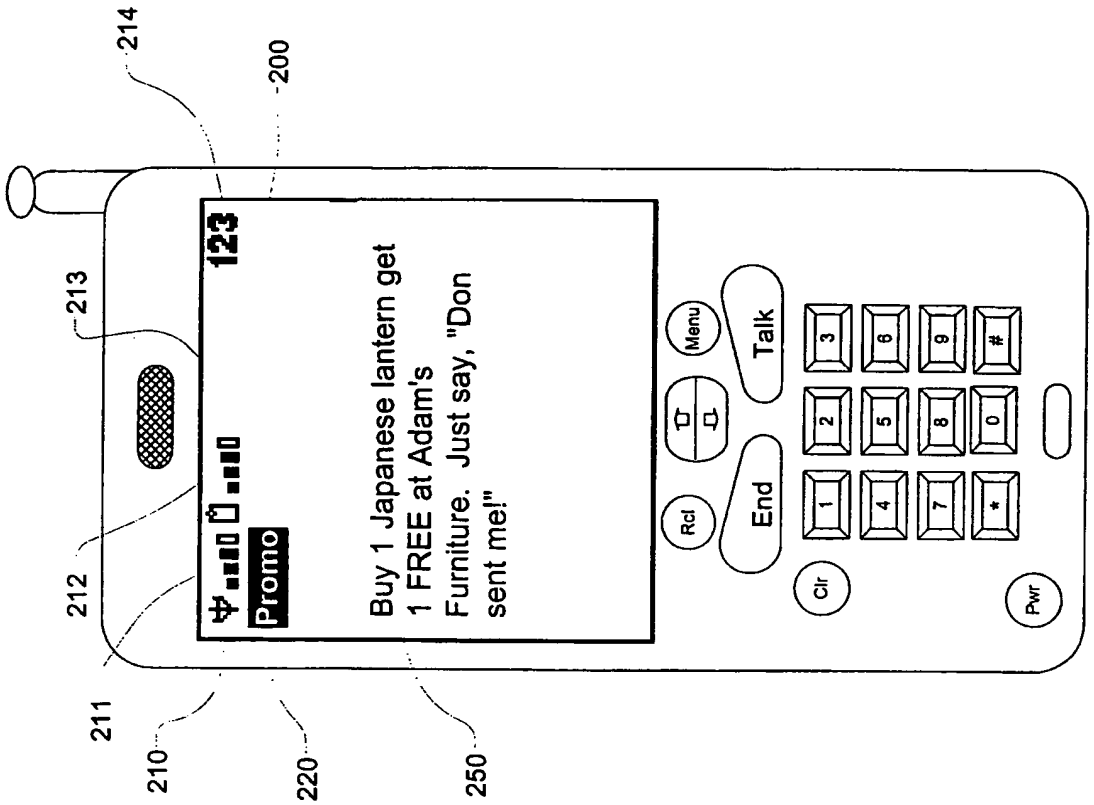

Local Device
100
103
102
101
Profile
Configuration Pages
140
Gateway
Ads and Subscriber Phone Numbers
Data Access Network
120
Ads and Subscriber Phone Nos.
Configuration Pages
Profile
130
Ad Server
145
150
MWDD

Figure 1

Figure 2


214
200
213
212
211
210
220
250
123
Promo
Buy 1 Japanese lantern get
1 FREE at Adam's
Furniture. Just say, "Don
sent me!"
Menu
Talk
End
Rcl
Clr
Pwr
1
2
3
4
5
6
7
8
9
*
0
#

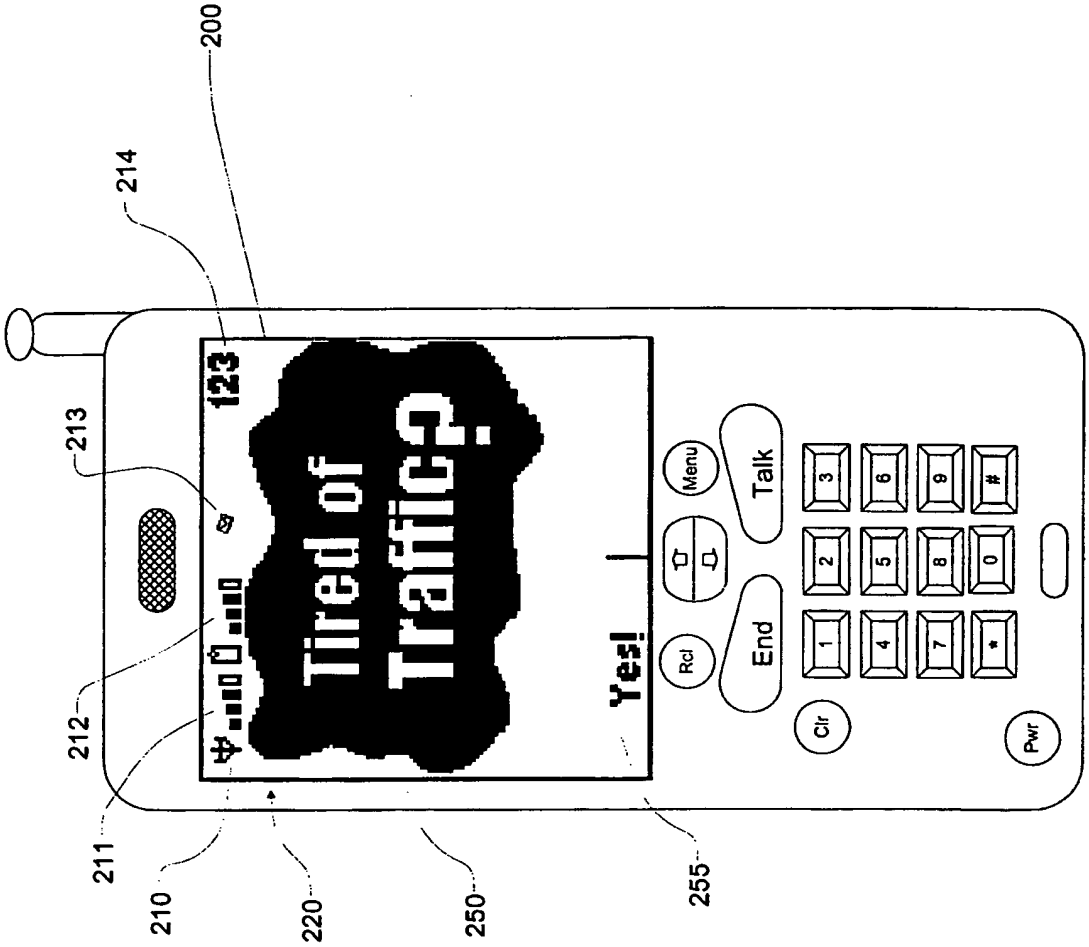

200
214
213
212
211
210
220
250
255
123
Tired of
Traffic?
Yes!
Menu
Talk
End
Rcl
Clr
Pwr
1
2
3
4
5
6
7
8
9
*
0
#

Figure 3

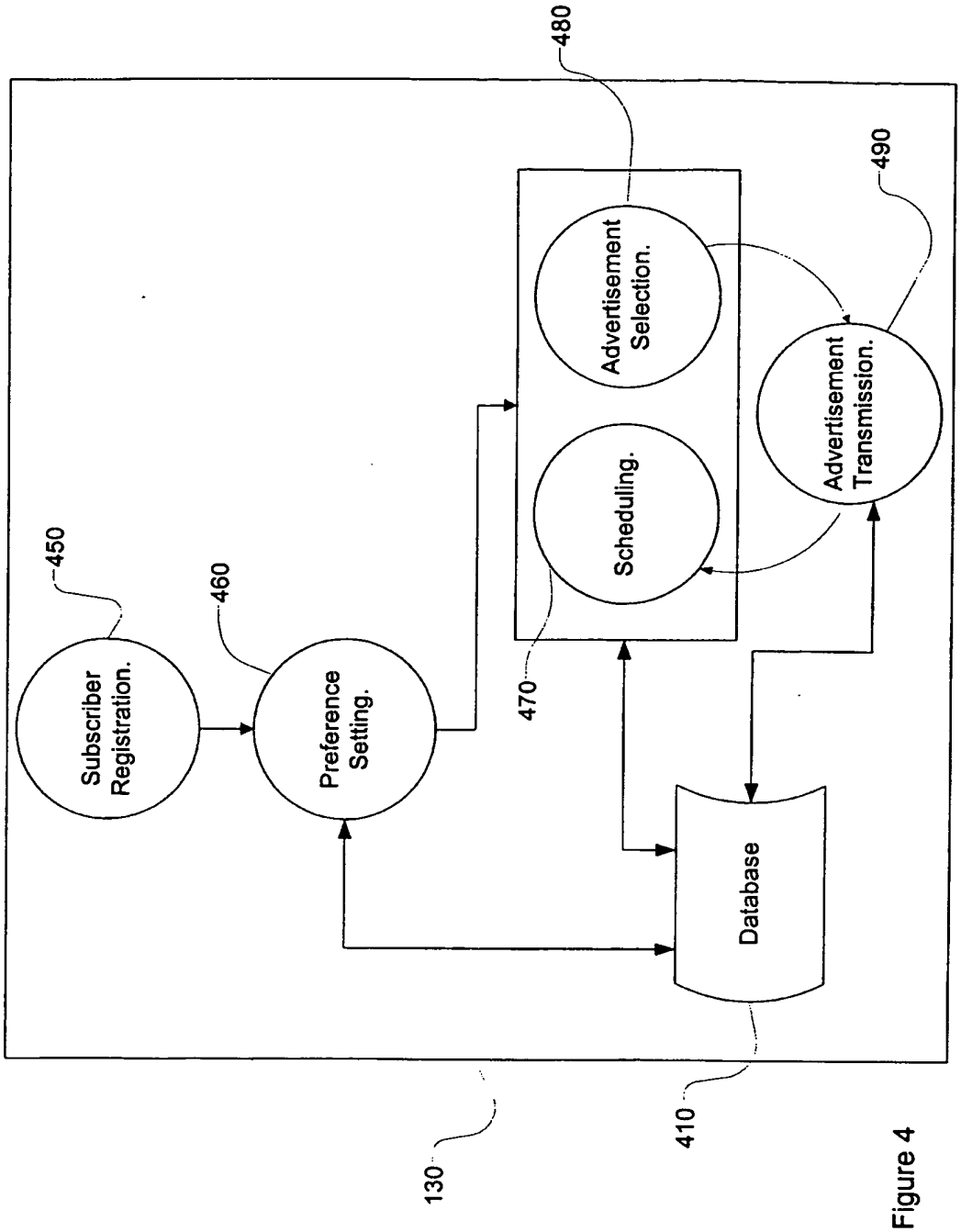

480
490
Advertisement Selection.
Advertisement Transmission.
Scheduling.
450
460
Subscriber Registration.
Preference Setting.
470
Database
130
410

Figure 4

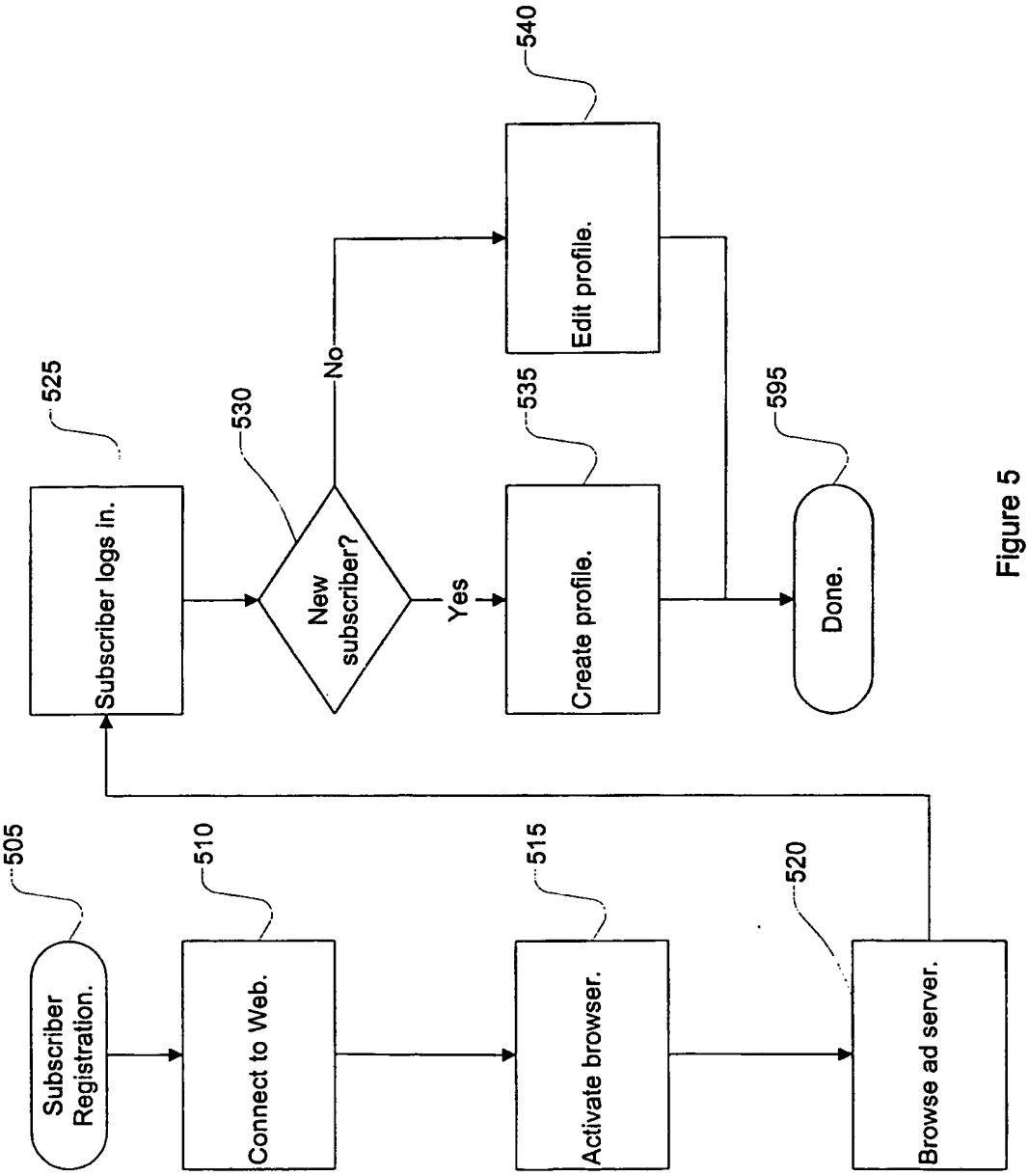

505
Subscriber Registration.
510
Connect to Web.
515
Activate browser.
520
Browse ad server.
525
Subscriber logs in.
530
New subscriber?
No
Yes
535
Create profile.
540
Edit profile.
595
Done.

Figure 5

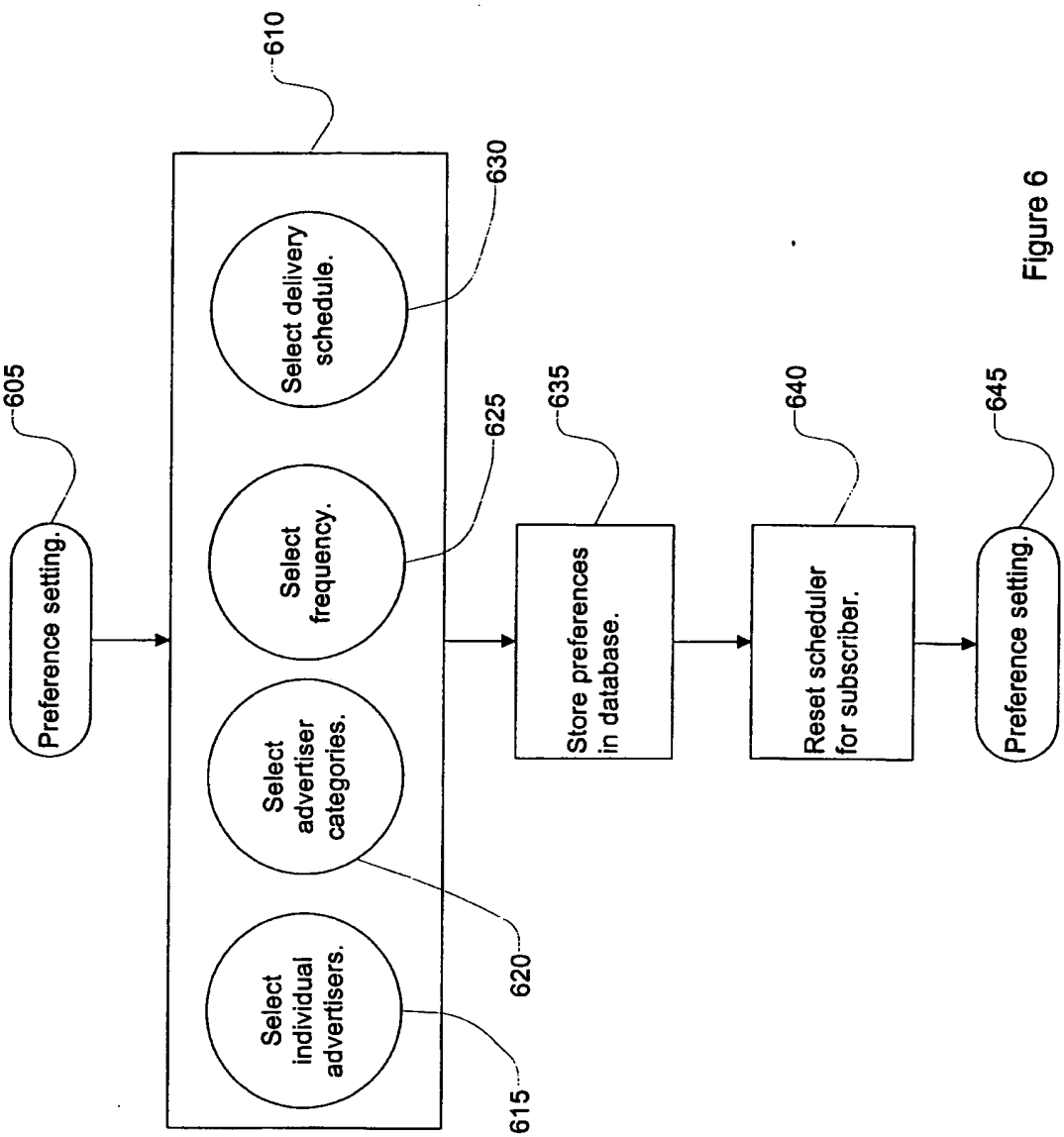

610
630
605
625
635
640
645
Preference setting.
Select delivery schedule.
Select frequency.
Select advertiser categories.
Select individual advertisers.
620
615
Store preferences in database.
Reset scheduler for subscriber.
Preference setting.

Figure 6

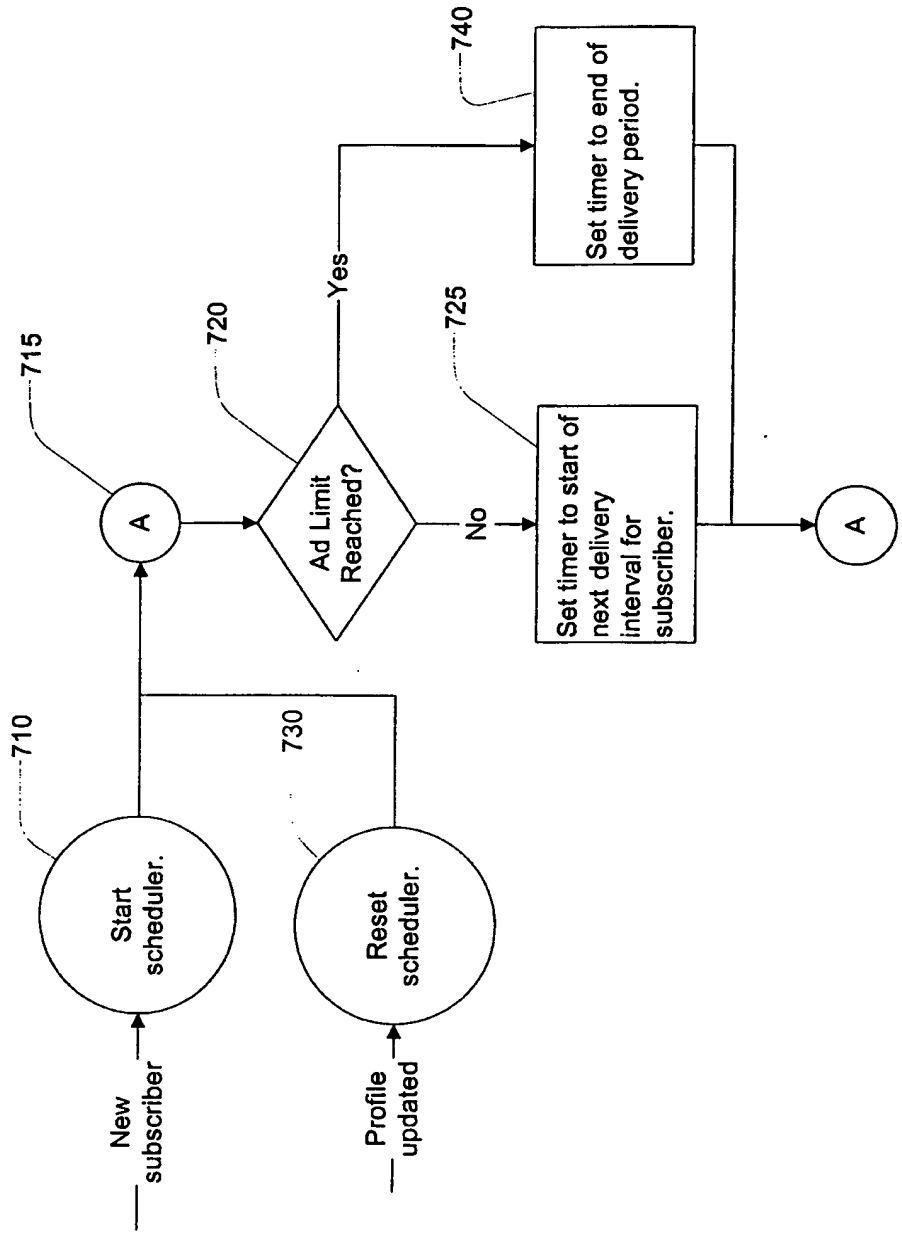

710
Start scheduler.
730
Reset scheduler.
New subscriber
Profile updated
715
A
720
Ad Limit Reached?
Yes
No
740
Set timer to end of delivery period.
725
Set timer to start of next delivery interval for subscriber.
A

Figure 7

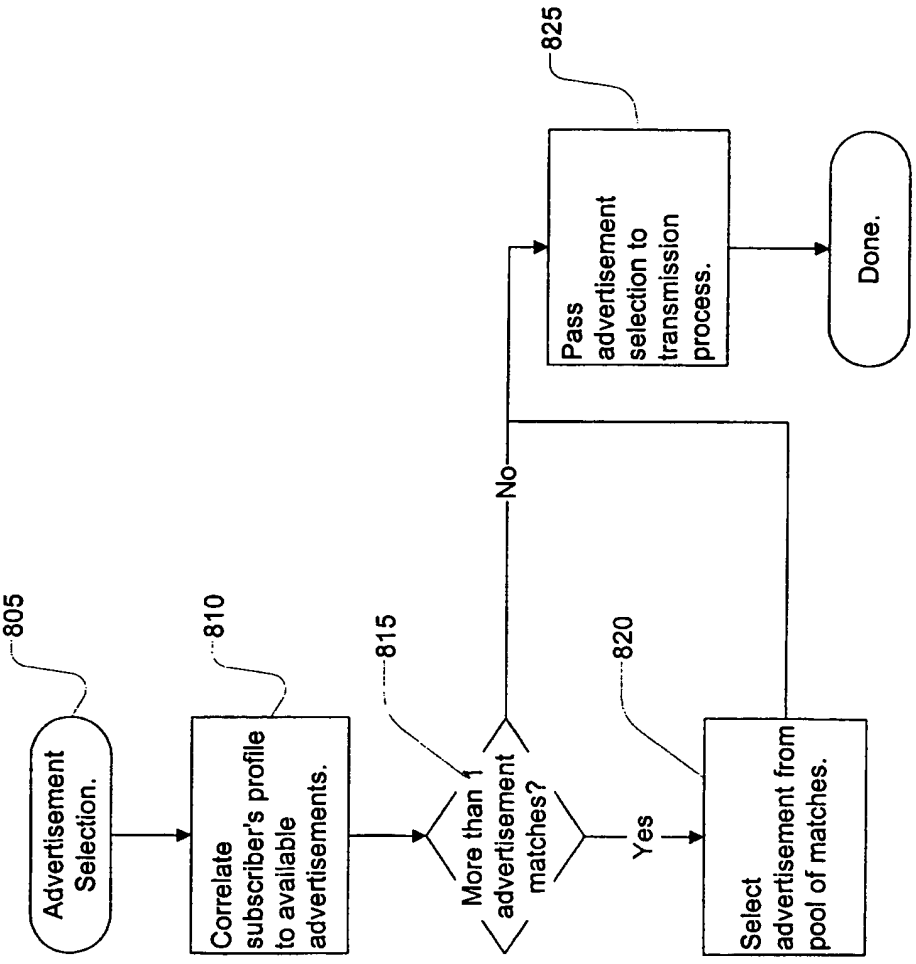

805
Advertisement Selection.
810
Correlate subscriber's profile to available advertisements.
815
More than 1 advertisement matches?
No
Yes
820
Select advertisement from pool of matches.
825
Pass advertisement selection to transmission process.
Done.

Figure 8

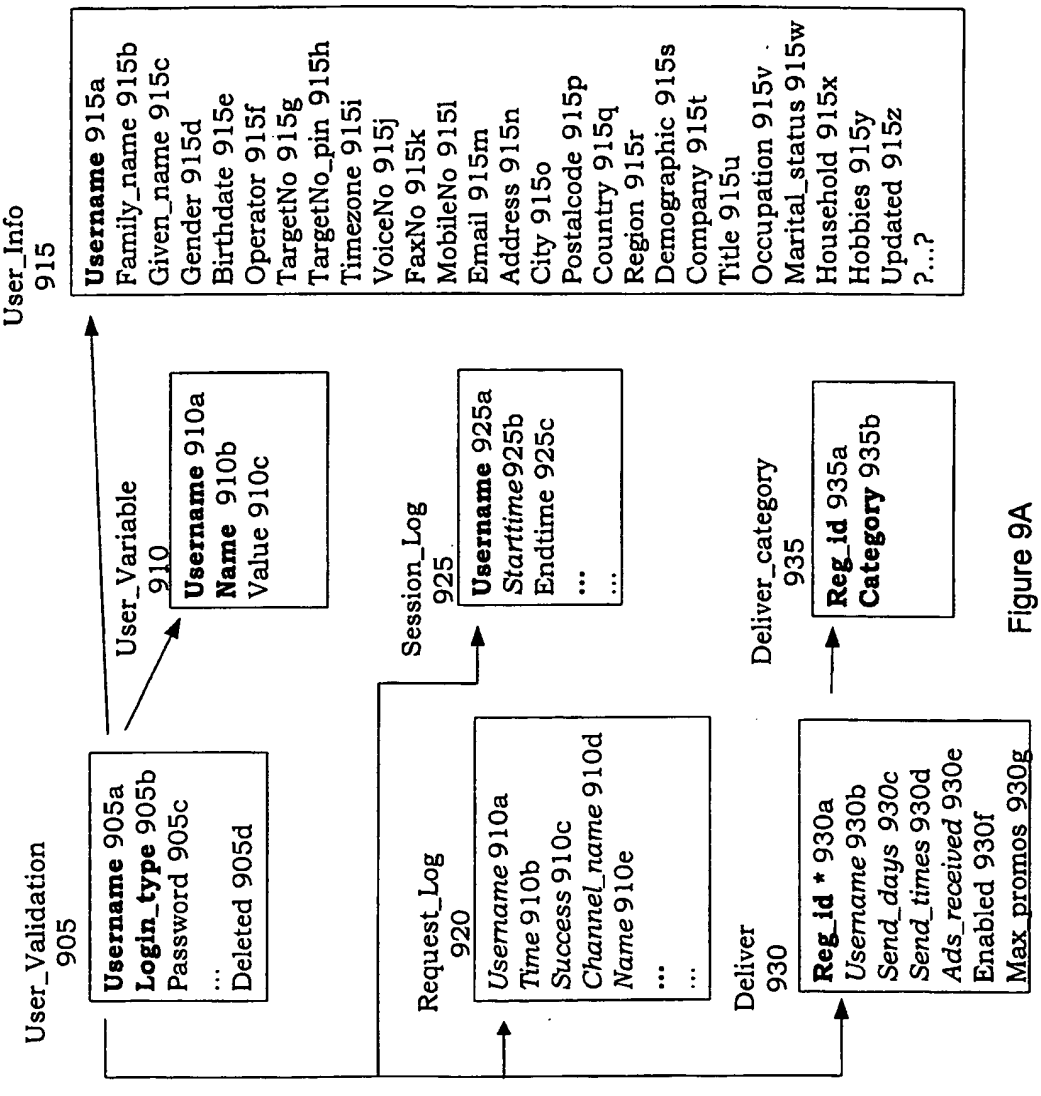

User_Info
915
Username 915a
Family_name 915b
Given_name 915c
Gender 915d
Birthdate 915e
Operator 915f
TargetNo 915g
TargetNo_pin 915h
Timezone 915i
VoiceNo 915j
FaxNo 915k
MobileNo 915l
Email 915m
Address 915n
City 915o
Postalcode 915p
Country 915q
Region 915r
Demographic 915s
Company 915t
Title 915u
Occupation 915v
Marital_status 915w
Household 915x
Hobbies 915y
Updated 915z
?...?
User_Variable
910
Username 910a
Name 910b
Value 910c
Session_Log
925
Username 925a
Starttime925b
Endtime 925c
...
...
Deliver_category
935
Reg_id 935a
Category 935b
User_Validation
905
Username 905a
Login_type 905b
Password 905c
...
Deleted 905d
Request_Log
920
Username 910a
Time 910b
Success 910c
Channel_name 910d
Name 910e
...
...
Deliver
930
Reg_id * 930a
Username 930b
Send_days 930c
Send_times 930d
Ads_received 930e
Enabled 930f
Max_promos 930g

Figure 9A

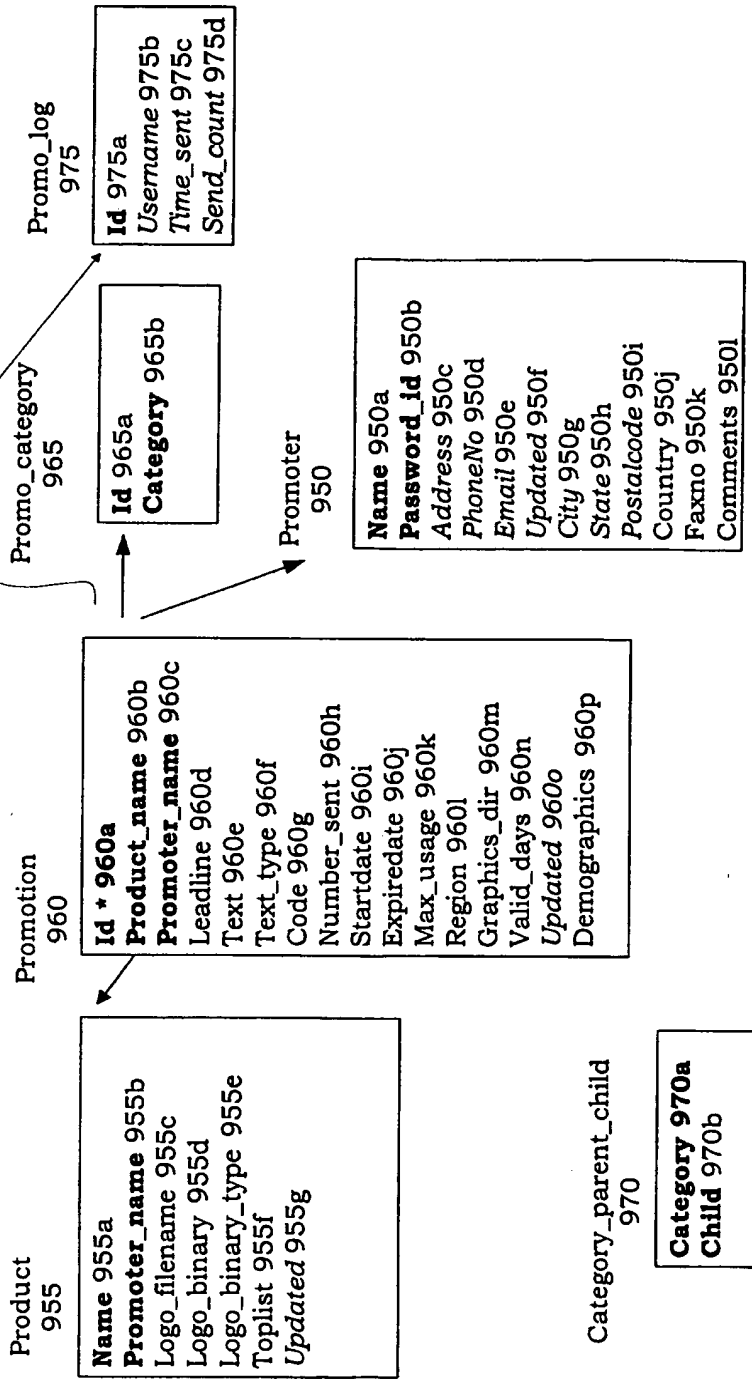

Promo_log
975
Id 975a
Username 975b
Time_sent 975c
Send_count 975d
Promo_category
965
Id 965a
Category 965b
Promoter
950
Name 950a
Password_id 950b
Address 950c
PhoneNo 950d
Email 950e
Updated 950f
City 950g
State 950h
Postalcode 950i
Country 950j
Faxno 950k
Comments 950l
Promotion
960
Id * 960a
Product_name 960b
Promoter_name 960c
Leadline 960d
Text 960e
Text_type 960f
Code 960g
Number_sent 960h
Startdate 960i
Expiredate 960j
Max_usage 960k
Region 960l
Graphics_dir 960m
Valid_days 960n
Updated 960o
Demographics 960p
Product
955
Name 955a
Promoter_name 955b
Logo_filename 955c
Logo_binary 955d
Logo_binary_type 955e
Toplist 955f
Updated 955g
Category_parent_child
970
Category 970a
Child 970b

Figure 9B

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